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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,663	07/10/2003	Nanning J. Arfsten	275-11U1	9955

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2005 MARKET STREET, SUITE 2200  
PHILADELPHIA, PA 19103-7013

EXAMINER
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BARR, MICHAEL E

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/616,663

**Applicant(s)**

ARFSTEN, NANNING J.

**Examiner**

Michael Barr

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 19 is objected to because of the following informalities: Claim 19 contains the misspelled word "heaxahydrate". Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15, 20-29, and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Boire et al.

Nakamura et al. teaches a method of producing a crack-resistant, anti-reflection coated glass substrate, such as soda-lime glass, to make a display panel, where the glass is coated with a first layer of titanium oxide and silicon oxide having an index of refraction of 1.60-1.95, then a second layer of a mixture of oxides including cerium oxide, silicon oxide, and titanium, tantalum, or zirconium, having an index of refraction of 1.91-2.60, and then a third layer of silicon oxide having an index of refraction of 1.35-1.59, wherein the layers can be applied by a sol-gel and dipping and the second layer can be 70 mol % or more cerium oxide (Col. 2, lines 30-54, Col. 3, line 50-Col. 4, line 65; Col. 7, line 55-Col. 8, line 50; Col. 9, lines 31-64; Col. 10, lines 52-55).

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Nakamura et al. does not teach heat treating the coated substrate. Boire et al. teaches providing a glass article with a multi-layer antireflection coating, each layer having indices of reflection with the claimed ranges, where each layer can be formed by sol-gel coating and heating, wherein the coated substrate is treated by tempering or bending, without effecting the optical properties of the coating (Col. 3, line 52-Col. 4, line 25; Col. 8, lines 31-51; Claims 1, 5, 11). The anti-reflection coating materials of Boire et al. It would have been obvious to one skilled in the art to heat treat the coated glass of Nakamura et al. by tempering and bending, with the expectation of gaining the strengthening benefits known in the art by such tempering and bending and with the expectation that the optical properties would not be effected, since it is shown by Boire et al. that such heat treatments can be conventionally performed on such anti-reflection coatings without effecting the optical properties of the coating.

4. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Boire et al., Boulos et al., Bach et al., and Urano et al.

Nakamura et al. and Boire et al. are applied here for the same reasons as given above. Nakamura et al. teaches that the sol-gel solvent can be ethanol (Col. 9, lines 30-37). Nakamura et al. does not teach the claimed silicon, titanium, and cerium precursor materials. Nakamura et al. is not particularly limited to the silicon, titanium, and cerium precursor materials, and thus it would have been obvious to one skilled in the art to use conventional silicon, titanium, and cerium oxide precursors in Nakamura et al., with the expectation of providing the desired oxide formation. Boulos et al. teaches forming an anti-reflection coating of silicon oxide by sol-gel coating, where the silicon oxide precursor is tetraethylorthosilicate (Col. 7, line 36-Col. 8, line 25). Bach et al. teaches forming an coating of titanium oxide by sol-gel coating, where the

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titanium oxide precursor is  $\text{TiCl}_4$  (Col. 40, lines 22-29). Urano et al. teaches forming cerium oxide from a sol, where the cerium oxide precursor is cerium nitrate hexahydrate (Example 3). It would have been obvious to one skilled in the art to use tetraethylorthosilicate,  $\text{TiCl}_4$ , and cerium nitrate hexahydrate as the silicon oxide, titanium oxide, and cerium oxide precursors in Nakamura et al., with the expectation of providing the desired oxide formations, since it is shown by Boulos et al., Bach et al., and Urano et al. that such respective silicon, titanium, and cerium oxide precursors are known and conventional in the art for providing such oxide, and thus would be expected to provide the same in Nakamura et al., since the actual oxide precursor material is not critical in Nakamura et al.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. and Boire et al. as applied to claim 20 above, and further in view of Boulos et al. and Bach et al.

Nakamura et al., Boire et al., Boulos et al., and Bach et al. are applied here for the same reasons as given above.

6. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. and Boire et al. as applied to claim 20 above, and further in view of Boulos et al. and Urano et al.

Nakamura et al., Boire et al., Boulos et al., and Urano et al. are applied here for the same reasons as given above.

7. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. and Boire et al. as applied to claim 20 above, and further in view of Boulos et al.

Nakamura et al., Boire et al., and Boulos et al. are applied here for the same reasons as given above.

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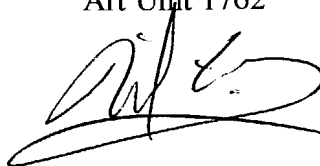
***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Barr whose telephone number is 571-272-1414. The examiner can normally be reached on Monday-Thursday 6:00 am-3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Barr  
Primary Examiner  
Art Unit 1762



MB  
March 31, 2004